

불규칙 출혈을 보이는 16세 여성

Abnormal Uterine Bleeding in Adolescents

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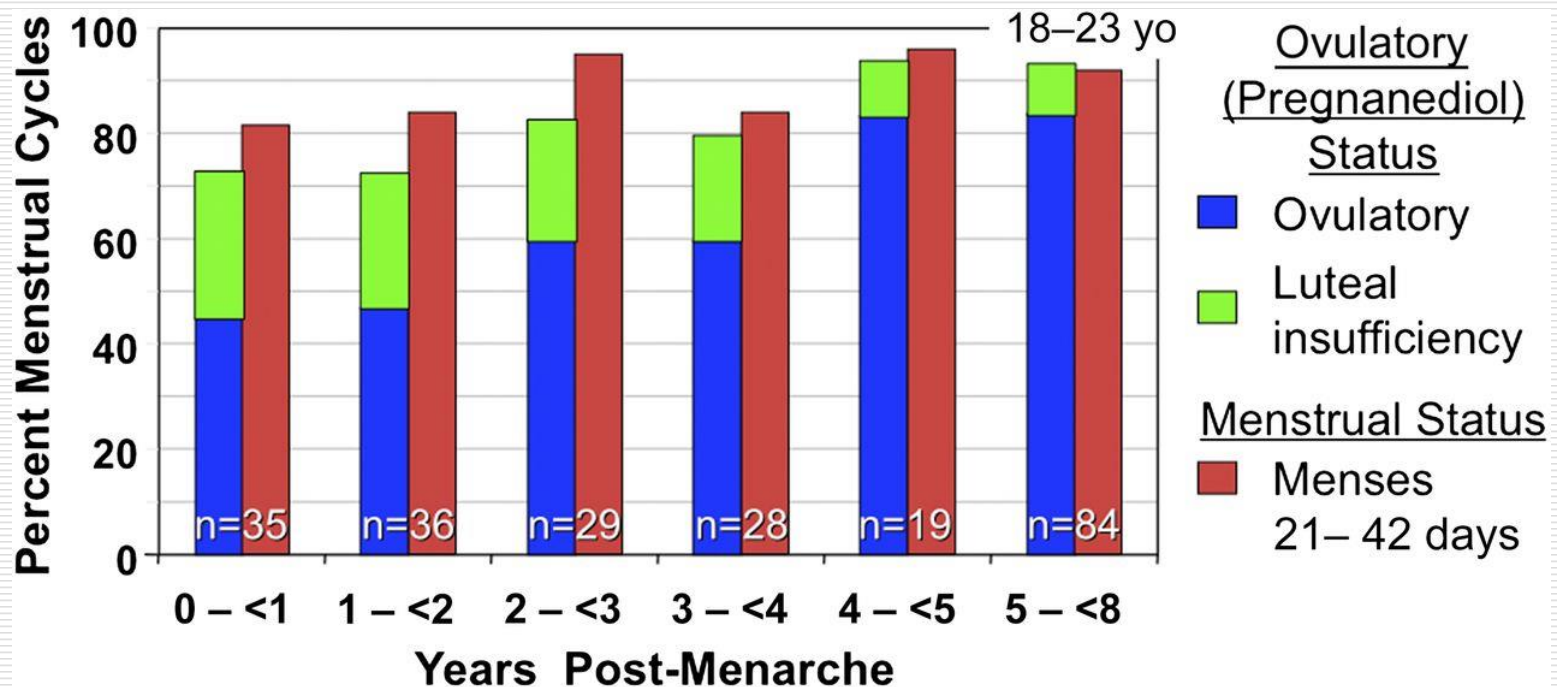
Classification of AUB in Adolescents v. Adults

Descriptor	Definition
Adolescent (1, 4, 132)	
Delayed puberty	Lack of breast development by 13 y
Primary amenorrhea	Lack of menarche by 15 y of age or by 3 y after the onset of breast development ^a
Secondary amenorrhea	Over 90 d without a menstrual period after initially menstruating
Oligomenorrhea (infrequent AUB)	Postmenarcheal y 1: fewer than 4 periods in the year (average cycle length >90 d) Postmenarcheal y 2: fewer than 6 periods in the year (average cycle length >60 d) Postmenarcheal y 3–5: fewer than 8 periods per year (average cycle length >45 d)
Anovulatory AUB ^b	Menstrual bleeding that occurs more frequently than every 21 d or is excessive (lasts more than 7 d or soaks more than 1 pad or tampon every 1–2 h)
Adult (15–17)	
Secondary amenorrhea	Over 90 d without a menstrual period after initially menstruating
Oligomenorrhea (infrequent AUB)	Fewer than 9 periods per year (cycle length > 38–40 d)
Anovulatory AUB ^b	Menstrual bleeding that occurs more frequently than every 24 d during a 90-d period, regularly lasts more than 8 d, or exceeds 80 cc
Light/short AUB	Flow < 5 cc/≤2 d
Spotting	Bloody staining not requiring sanitary protection
Irregular	Variation greater than 20 d

Ovulatory Menstrual Cycles in Adolescents

The Diagnosis of Polycystic Ovary Syndrome in Adolescents

Robert L. Rosenfield, MD



Abnormal Uterine Bleeding

Causes in Adolescents

- ❑ **Anovulatory bleeding, 50-85%**
 - Immature negative feedback system
Higher FSH, Increased E₂, Excessive endometrial growth
 - Immature positive feedback system
Inadequate LH surge, Absence of progesterone effect
 - ❑ **Hematologic disorders, 5-20%**
 - ❑ **Anatomical causes**
Endometrial polyps, Endometrial hyperplasia, Fibroid, Cancer
 - ❑ **Infectious causes**
Endometritis, Cervicitis
-

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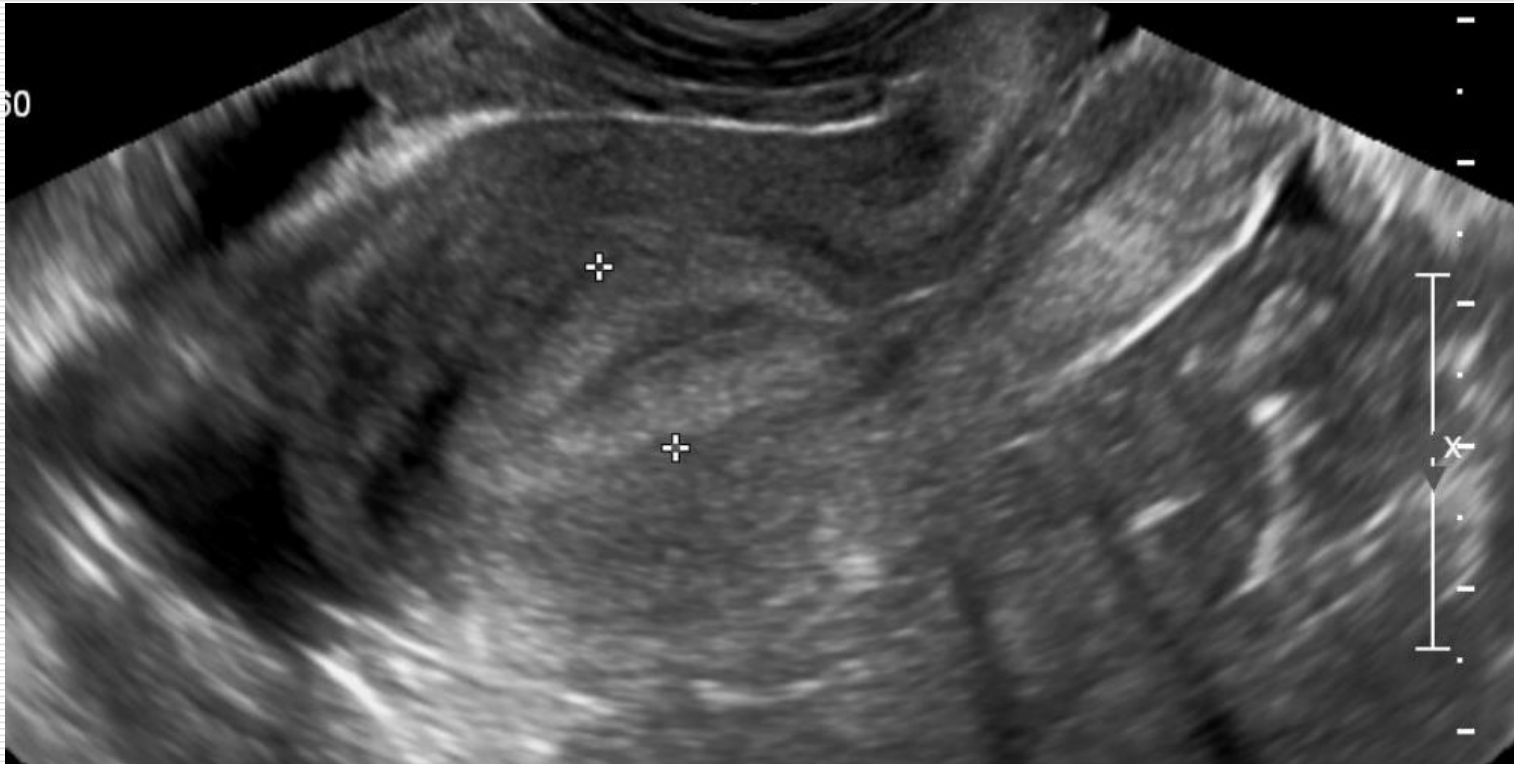
CASE-1, 1st visit

- ❑ **Chief complaints** Profuse vaginal bleeding for 15 days
 - ❑ **Time of first visit** Jan 2015
 - ❑ **Age at first visit** 16 years 9 months old
 - ❑ **Years since menarche** 4 years and 6 months
Menstrual history Regular/28-30d/7d/moderate
 - ❑ **Review of Systems**
Dizziness (++) , Headache (+) , Dyspnea on exertion (+)
 - ❑ **Physical examination**
Height 174cm, Body weight 86kg, BMI 28.4, BP 117/65 mmHg
 - ❑ **Personal history**
Weight reduction 5kg in the last month, Stress (+)
-

CASE-1, 1st visit

- ❑ **Laboratory test: CBC, Urine HCG**
Hemoglobin 6.3 g/dl, Platelet 196k, Urine HCG negative
 - ❑ **Pelvic US (Transrectal)**
EMT 13.8mm, Polycystic ovaries, 3.2cm-RO hemorrhagic cyst
 - ❑ **Genital examination**
Not performed
-

CASE-1, Transrectal ultrasound



CASE-1, Treatment and follow up

□ **Diagnosis**

Anovulatory bleeding, transient
Severe iron-deficiency anemia

□ **Treatment**

Transfusion of packed RBC, 2pints
Oral MPA 10mg once daily for 14 days for 3 cycles
Oral iron pills 1T bid for 30 days

□ **Follow up**

Resumption of normal menstruation

CASE-2, 1st visit

- ❑ **Chief complaints** Continuous vaginal bleeding since menarche
 - ❑ **Time of visit** Jan 2013
 - ❑ **Age at first visit** 16 years 3 months old
 - ❑ **Years since menarche** 3 years and 5 months
Menstrual history Continuous bleeding without cyclicity
 - ❑ **Physical examination**
Height 172cm, Body weight 52kg, BMI 17.6, BP 105/71 mmHg
Acne moderate, Ferriman & Gallway score 3, Normal clitoral glans size
 - ❑ **Personal history**
Weight changes (-), Stress (-), Strenuous exercise (-)
Nose bleeding (-), easy bruising (-)
-

CASE-2, 1st visit

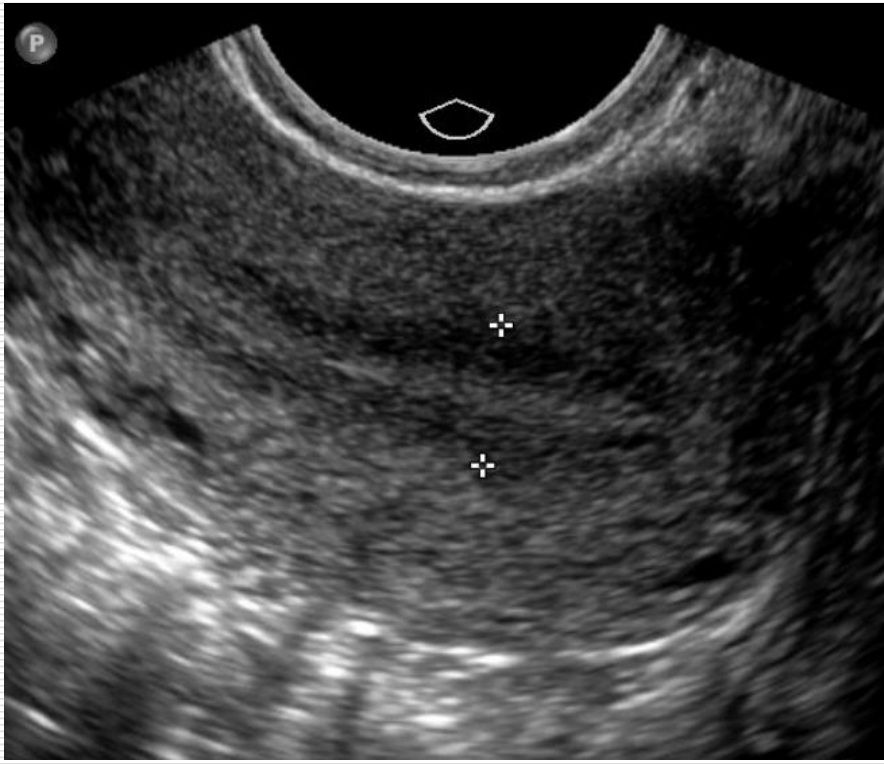
Laboratory test

Hemoglobin 11.9 g/dl, Platelet 178k, PT 82%, PTT normal
vWF Ag 106, Ristocetin cofactor 70
LH 13.9 / FSH 8.1 / T 0.46 / AMH 2.18

Pelvic US (Transrectal)

EMT 8mm uneven echogenicity, PCO

CASE-2, Transrectal ultrasound



CASE-2, Treatment

- **Diagnosis**

 - Anovulatory bleeding, chronic
 - Suspicious endometrial pathology

- **Treatment**

 - Oral MPA 10mg once daily for 14 days, 3 cycles

CASE-2, follow up

- ❑ **Bleeding pattern with Oral MPA therapy**
WB duration 14 days, moderate to small amount
 - ❑ **Pelvic US (Transrectal)**
EMT 4.5mm normal echogenicity, PCO
 - ❑ **Treatment**
Switch to low-dose combined oral contraceptives
 - ❑ **Bleeding pattern with Oral contraceptives**
WB duration 5 days, moderate amount
-

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 - ❑ **Hematologic disorders, 5-20%**
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Endometrial polyps, Endometrial hyperplasia, Fibroid, Cancer
 - ❑ **Infectious causes**
Endometritis, Cervicitis
-

CASE-3, 1st visit

- ❑ **Chief complaints**
Vaginal bleeding for 1 month
Prolonged menstruation since menarche
 - ❑ **Time of visit** Apr 2014
 - ❑ **Age at first visit** 16 years 6 months old
 - ❑ **Years since menarche** 3 years and 9 months
Menstrual history Irregular/20d/10-15d/variable amount
 - ❑ **Physical examination**
Height 159cm, Body weight 60kg, BMI 23.8, BP 109/65 mmHg
Acne moderate, Ferriman & Gallway score 2, Normal clitoral glans size
 - ❑ **Review of Systems** Dizziness (+), Headache (-), Dyspnea (-)
 - ❑ **Personal history** Nose bleeding (-), easy bruising (-)
-

CASE-3, Investigation & Treatment

❑ Laboratory test

Hemoglobin 5.7 g/dl, Platelet 339k, PT 114%, Normal PTT
LH 0.89 / FSH 6.57 / T 0.26 / SHBG 58.0 / AMH 1.52

❑ Pelvic US (Transrectal)

EMT 12.8mm, bilateral ovarian follicular cysts

❑ Laboratory test (2nd)

vWF Ag 75, Ristocetin cofactor 37, Factor VIII 102
LH 3.24 / FSH 6.4 / Morning cortisol 9.26 / E2 44.8

❑ Diagnosis

Abnormal uterine bleeding of unknown etiology

❑ Management

Oral iron pills & Oral MPA 10mg daily for 14 days, 3 cycles

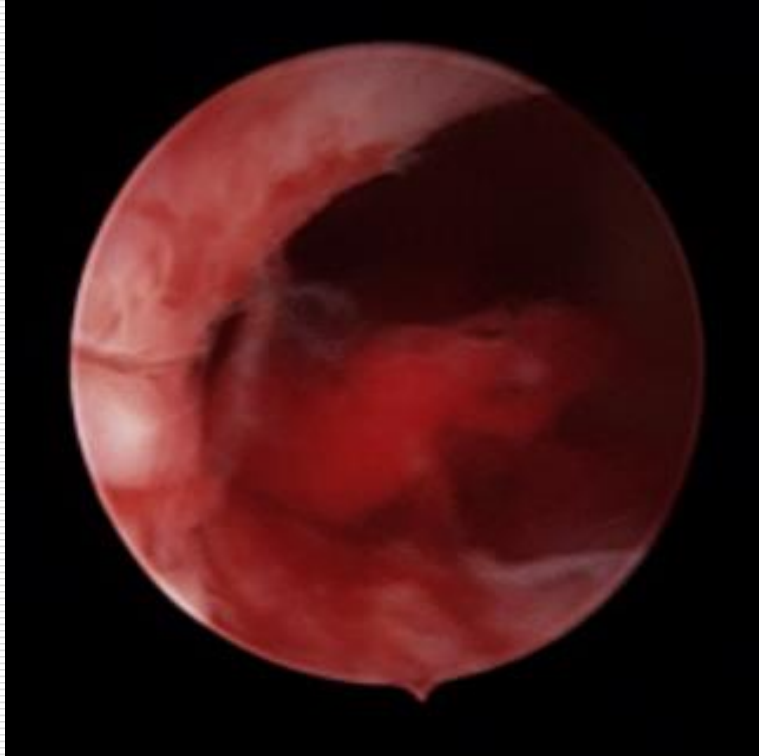
CASE-3, Follow up after 3 cycles' MPA

- **Efficacy of 3 cycles' Oral MPA**
Prolonged withdrawal bleeding, duration 15 days
Partial improvement of iron deficiency anemia
 - **Pelvic US (Transrectal)**
EMT 9.8mm with 24*8mm echogenic endometrial mass lesion
-

CASE-3, Transrectal ultrasound (Post MPA)



CASE-3, Hysteroscopy



CASE-3, Follow up

- Procedures**
Hysteroscopic endometrial mass removal
 - Pathology**
Stromal breakdown
 - Follow up**
Normalized menstrual period
-

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 - *Immature positive feedback system*
Inadequate LH surge, Absence of progesterone effect
 - ❑ Hematologic disorders, 5-20%
 - ❑ **Anatomical causes**
Endometrial polyps, Endometrial hyperplasia, Fibroid, Cancer
 - ❑ Infectious causes
Endometritis, Cervicitis
-

CASE-4, 1st visit

- ❑ **Chief complaints** Prolonged vaginal bleeding for 55 days
 - ❑ **Time of visit** Nov 2013
 - ❑ **Age at first visit** 16 years 8 months old
 - ❑ **Years since menarche** 5 years
Menstrual history Irregular/30-90d/7-9d/small
 - ❑ **Physical examination**
Height 163cm, Body weight 61kg, BMI 22.9, BP 114/69 mmHg
Acne (-), Ferriman & Gallway score 4, Normal clitoral glans size
 - ❑ **Review of Systems**
Dizziness (-), Dyspnea (-)
 - ❑ **Personal history**
Weight gain 10kg in the last year, Stress (+)
-

CASE-4, 1st visit

Laboratory test

Hemoglobin 12.7 g/dl, Platelet 247k, PT 84%, PTT normal
LH 17.0 / FSH 5.1 / T 0.36 / SHBG 26.6 / AMH 18.8 / OGTT normal

Pelvic US (Transrectal)

EMT 30.0mm increased echogenicity with small cystic lesions, PCO

Pelvic MRI

About 2.6cm*7.0cm sized endometrial lesion such as polyp, hyperplasia or cancer

Diagnosis

Endometrial pathology, Oligo/anovulation

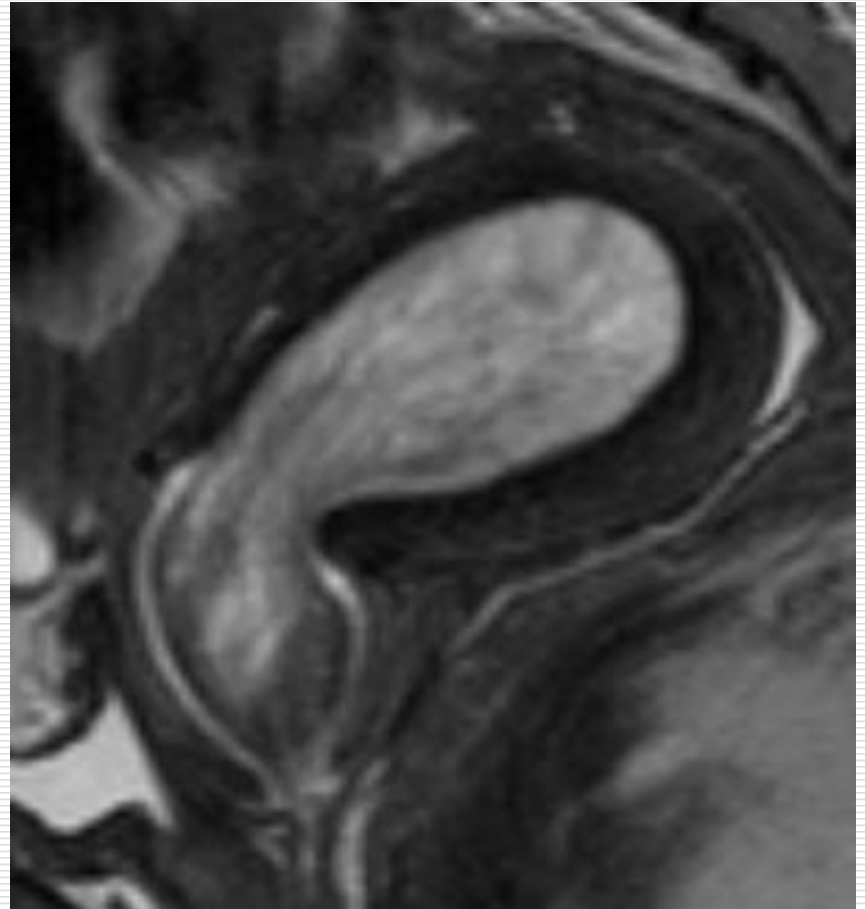
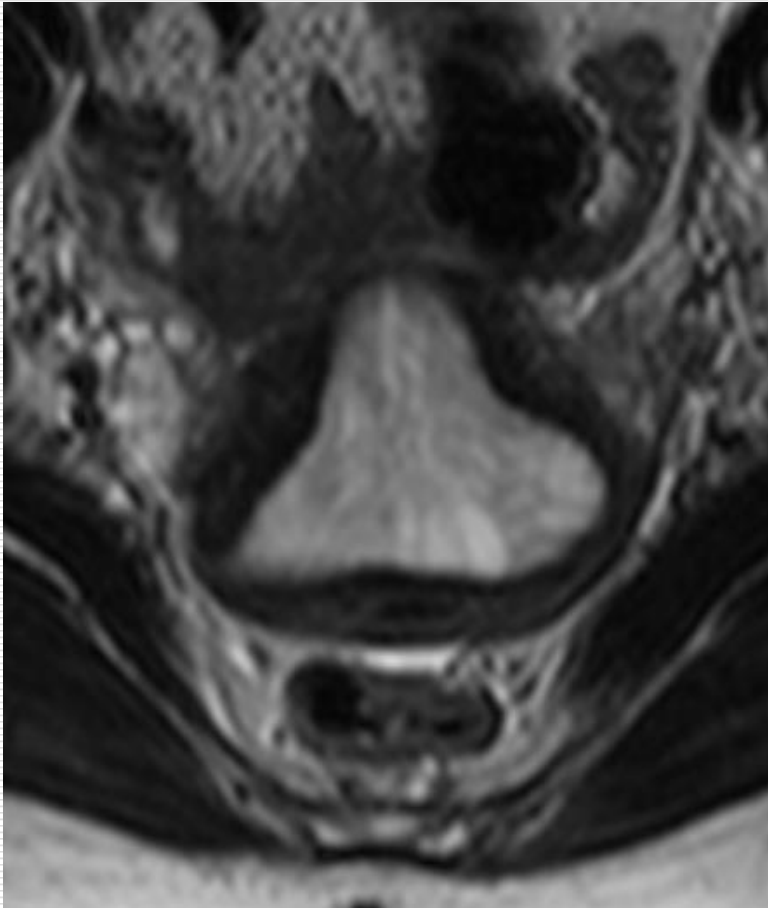
Recommendation Endometrial biopsy

Follow up lost

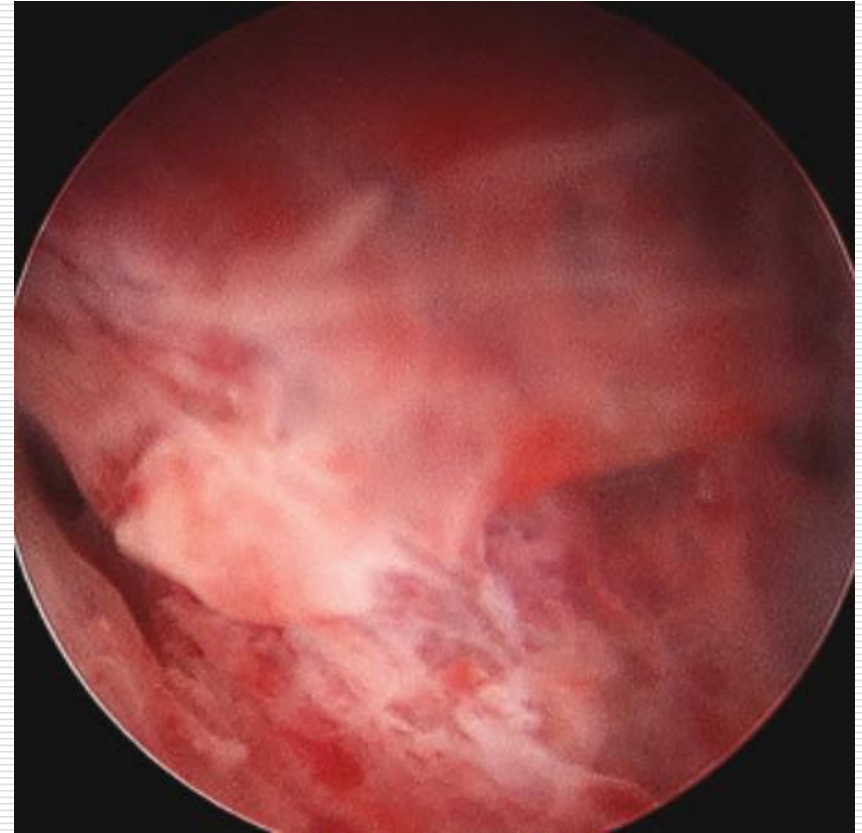
CASE-4, 2nd visit

- ❑ **Chief complaints** Continuous vaginal bleeding since the last visit
 - ❑ **Time of visit** Oct 2014, 11 months after 1st visit
 - ❑ **Past history** Herb medications
 - ❑ **Pelvic MRI**
About 3.9cm*7.0cm sized lesion such as polyp, hyperplasia or cancer
-

CASE-4, Pelvic MRI



CASE-4, Hysteroscopy



CASE-4, 2nd visit

□ Procedure

Hysteroscopic endometrial mass removal

Diffusely hyperplastic and necrotic endometrial tissues removed

□ Pathology

Complex hyperplasia with multifocal **early carcinomatous changes**

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 - ❑ **Infectious causes**
Endometritis, Cervicitis
-

CASE-5, 1st visit

- ❑ **Chief complaints**
Prolonged menstrual bleeding & lower abdominal pain for 11 months
 - ❑ **Time of visit** Sep 2012
 - ❑ **Age at first visit** 16 years 11 months old
 - ❑ **Years since menarche** 5 years
Menstrual history Regular/30d/7d/mod => Regular/30d/25d/mod
 - ❑ **Physical examination**
Height 149cm, Body weight 51kg, BMI 23.3, BP 96/75 mmHg
Acne (-), Ferriman & Gallway score 0, Normal clitoral glans size
 - ❑ **Pelvic examination**
Cervical touch bleeding (+), Fundal tenderness (+)
 - ❑ **Personal history**
Sexual contact with multiple partners
-

CASE-5, Investigation & Treatment

Laboratory test

Hemoglobin 13.4 g/dl, Platelet 300k, PT 104%, Normal PTT, CRP 0.04
LH 5.4 / FSH 6.0 / TSH 1.2/ Prolactin 11.7

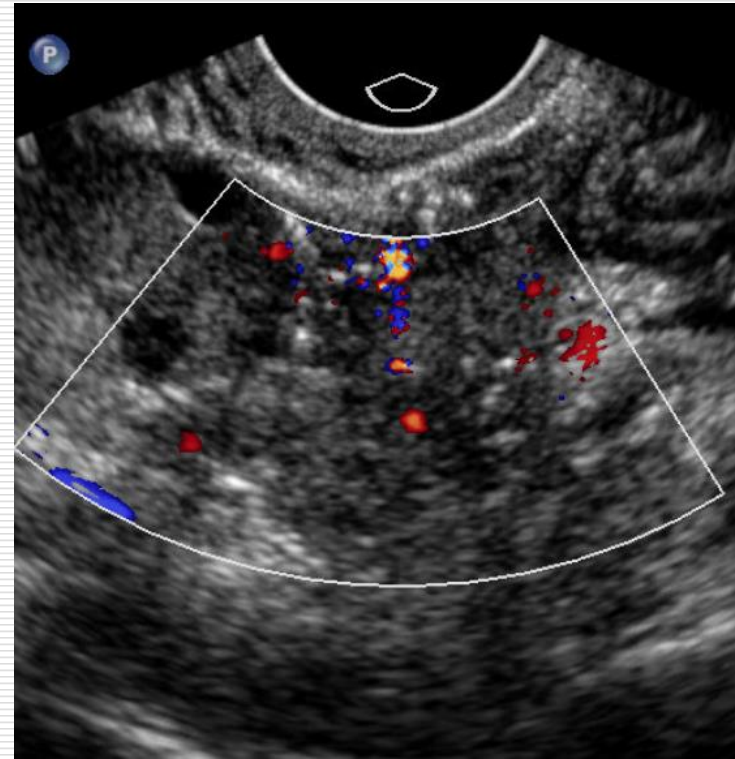
Transvaginal Ultrasound

EMT 11mm with irregular lining, Right salpingitis

Cervical microbiology

C trachomatis PCR (+), N Gonorrhea PCR (-)

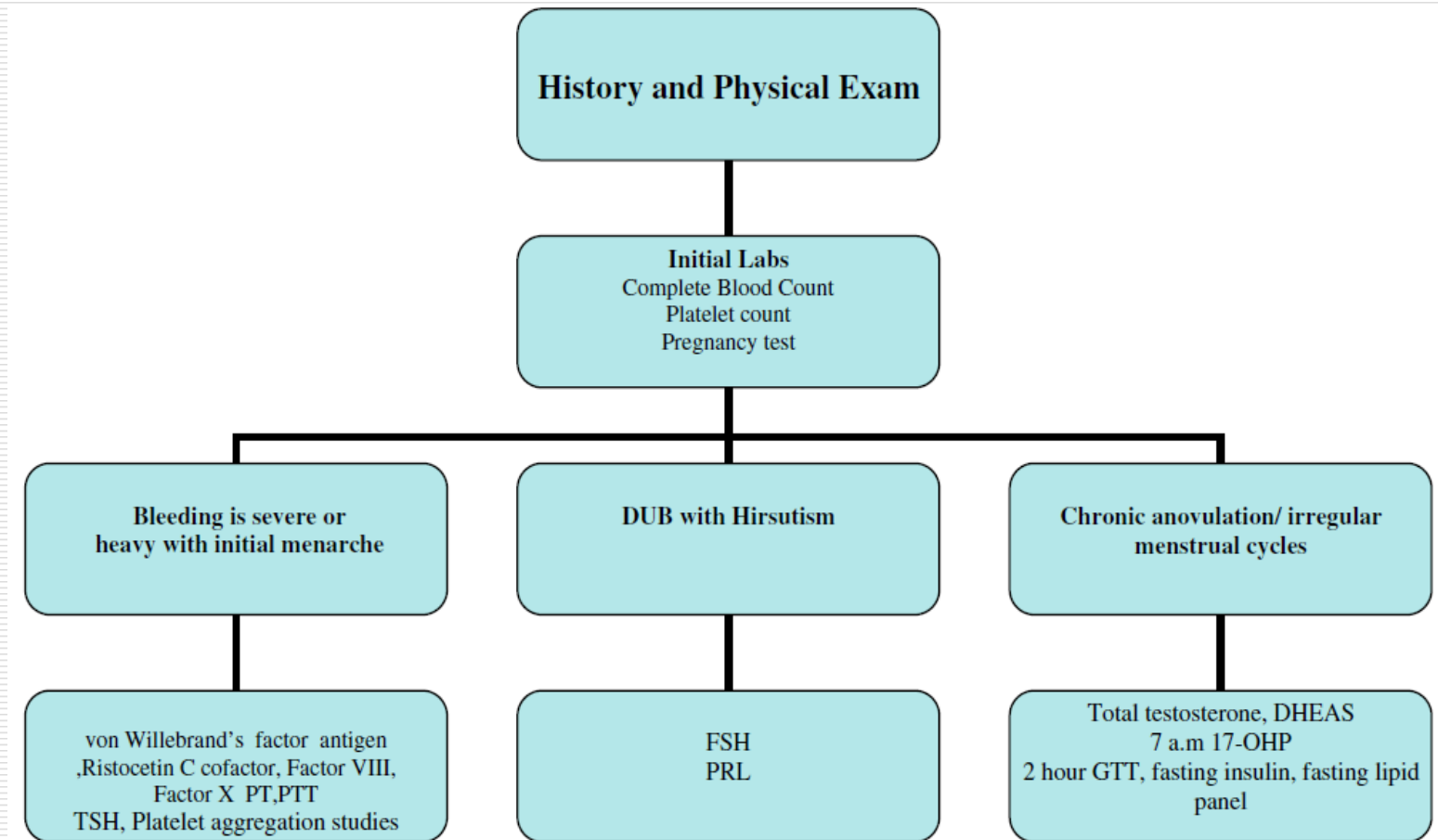
CASE-5, Transvaginal ultrasound



CASE-5, Investigation & Treatment

- ❑ **Abdominal-pelvic CT**
Mild pelvic inflammatory disease, Right salpingitis
 - ❑ **Diagnosis**
Chlamydial endometritis & salpingitis
 - ❑ **Management**
Admission and Antibiotic treatment
 - ❑ **Follow up**
Normalized menstrual pattern
-

Evaluation of Adolescent AUB



Thank you
